REMARKS

Reconsideration is respectfully requested.

Claims 1, 5-10, 13, 15, 34, 38-43, 46 and 48 are pending.

Claim 1 has been amended to incorporate the subject matter of canceled claims 2-4, 11-12, 14 and 16. Claim 34 has been amended to incorporate the subject matter of canceled claims 35-37, 44-45, 47 and 49. Claims 1 and 34 also are amended to incorporate subject matter from the specification. From page 19, example 2, language was incorporated to describe the cationic polyelectrolyte as "being from 2000 up to 10,000 weight average molecular weight". From page 7, lines 26-27, support is given for inserting the phrase "water-soluble" before the first occurrence of the terms "dye" and "anionic binder". No new matter has been added.

Claim 4 has been objected to because of an informality. With the cancellation of claim 4, this objection is now moot.

Claims 3-6, 11-15, 36-39 and 44-48 stand rejected under 35 U.S.C. 112, second paragraph.

First of all, under 112, the application is rejected on the basis that claims 3 and 36, 5 and 38, 11 and 44, 12 and 14-15, and 45 and 47-48 all have problems with lack of agreement of singular and plural forms, some of which lack of agreement is related to the use of the phrase "at least one" at various places throughout the claims. In all of these claims, some of which have been canceled but have subject matter incorporated into either claim 1 or claim 34, the phrase "at least one" has been deleted. Furthermore, the claims have been amended to correct the disagreement between singular and plural forms.

Claim 38 is also rejected under 112 because of a phrase that has an inadvertent error "the [branched] polymers". The phrase has been amended to remove the bracketed word "[branched]".

The amendment of the claims as described above obviates the 112 rejection. Applicant respectfully requests that the rejection be withdrawn.

Claims 1, 7-12, 15, 34, 40-45, and 48 stand rejected under 35 U.S.C. 102(b) as being anticipated by either of Kurabayashi et al. and Takahashi et al. With the amendment of claims 1 and 34 to incorporate subject matter of claims 2, 3, 4, 11, 12, 14, 15 and 16 into claim 1 and subject matter of claims 35, 36, 37, 44, 45, 47 and 49 into claim 34, claims 1 and 34 claim subject matter is not anticipated nor made obvious by any one of Kurabayashi and Takahashi.

In view of the above amendments and arguments, applicants respectfully request the Examiner's reconsideration and request withdrawal of the presently pending § 102(b) rejections.

Claims 1-5, 7-10, 16, 34-38, 40-43,and 49 stand rejected under 35 U.S.C. 102(a) as being anticipated by Watanabe et al.

Watanabe discloses combining ink with underprinted cationic fixer fluid. In a preferred embodiment, the ink is a resin emulsion with water as a continuous phase and the resin component as a dispersed phase (Column 9, lines 44-46). In other words the resin component is not dissolved in the water, rather it is dispersed. Specific examples of "water insoluble" thermoplastic resins used to form the resin emulsion are listed from Column 10, line 65 to Column 11, line 12.

In view of the above amendments and arguments, applicants respectfully request the Examiner's reconsideration and request withdrawal of the presently pending § 102(a) rejection.

Claims 1-16 and 34-49 stand rejected under 35 U.S.C. 102(s) as being anticipated by Kabalnov taken in view of the evidence given in Prasad.

Applicants assert that Kabalnov is not a proper reference under § 102(e) against the presently claimed invention because applicant invented the presently claimed invention before the date that Kabalnov was filed in the U.S. Patent Office. Applicant submits herewith a Declaration under 37 C.F.R. § 1.131. The Declaration establishes, with corroborating documents, that the presently claimed invention was made before August 17, 1999.

In view of the above arguments and evidence, applicants respectfully request the Examiner's reconsideration and requests withdrawal of the presently pending § 102(e) rejection.

In contrast, in the presently claimed invention, the ink in an aqueous solution comprises dye and anionic binder polymer. As an aqueous solution, both components of the ink are necessarily soluble in water, unlike the water insoluble thermoplastic resins in the ink of Watanabe.

Furthermore, Watanabe teaches that the underprinted cationic fixer fluid has cationic surfactants which include quaternary ammonium salts and derivatives thereof. Specific examples of quaternary ammonium salts ($R_1R_2R_3R_4N^+X^-$) are given in Column 7, lines 6-15, where R_1 and R_2 each independently represent a C_8-C_{20} alkyl, benzyl, or phenyl group, R_3 and R_4 each independently represent a C_1-C_4 alkyl group and X^- represents a counter ion. At its largest, the quaternary ammonium salts described in Watanabe are well under 1000 molecular

weight.

In contrast, in the presently claimed invention, the cationic polyelectrolytes of the underprinted fixer fluid have a molecular weight in the range 1000-10,000, which is well above the possible molecular weight of the quaternary ammonium salts disclosed in Watanabe.

As evidence of the importance of having cationic polyelectrolytes of the underprinted fixer fluid which have a molecular weight in the range 1000-10,000, in the parent case, the applicants submitted a Declaration under 132 signed by inventor Shirley Lee which presents results of experiments comparing underprinting fixer fluids with and without cationic polyelectrolytes (specifically styrene maleimide 1000i, a quaternary ammonium resin having MW from 5000-10,000) and their interaction with dye-based ink-jet ink. Specifically it was found that there was a significant improvement in optical density and smudgefastness of the ink-fixer interaction with the fixer fluid having the styrene maleimide 1000i. Improvement in those qualities relates directly to good film-forming qualities, i.e., formation of the amorphous, viscous film of the presently claimed invention. A copy of the signed Declaration under 132 is submitted again herewith.

For the above reasons, the 102(a) rejection of Claims 1-5, 7-10, 16, 34-38, 40-43, and 49 based on Watanabe should be withdrawn.

Claims 2-6 and 35-39 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kurabayashi et al. or Takahashi et al., either of which in view of either Zhu or EP 735120.

The presently claimed invention is not suggested nor made obvious by a combination of Kurabayashi or Takahashi with either Zhu or EP 735120. There would be no motivation to combine Kurabayashi or

Takahashi with Zhu or EP 735120. Zhu and EP 735120 disclose an anionic styrene maleic anhydride binder in an aqueous ink without an underprinted fixer. The binder in Zhu and EP 735120 acts to help bind the anionic colorant of the ink to the media substrate. There would be no motivation to use an ink with the anionic styrene maleic anhydride binder with an underprinted cationic fixer, such as those disclosed in either Kurabayashi or Takahashi. Since the stated purpose in both Zhu and EP 735120 of the anionic binder is to bind or fix the anionic colorant to the substrate, the combination of anionic binder-containing ink with an underprinted cationic fixer would not be desirable, because there is nothing in any of the cited patents that suggests the desirability of such a combination. The fact that the cations in the underprinted fixer would interfere with the anionic binder molecules binding the anionic colorant to the substrate would even make it undesirable because it would hinder the purpose stated in both Zhu and EP 735120 of using the anionic binder to bind the anionic colorant to the substrate.

In light of the above arguments, applicant respectfully asserts that the 35 U.S.C. 103(a) rejections of claims 2-6 and 35-39 based on Takahashi or Kurabayashi in view of Zhu and EP 735120 should be withdrawn and that the presently claimed invention is patentable over any combination of the cited references.

Claims 13 and 46 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. or Kurabayashi et al. either of which in view of Yatake.

Yatake teaches an ink and a fixer fluid. Specifically, Yatake uses polyethyleneimine in the fixer fluid to react with the dispersed pigment. However, like Takahashi and Kurabayashi, it teaches nothing about cationic polyelectrolytes in the underprinted fixer fluid in the underprinted fixer fluid having a molecular weight in the range from 2000-10,000 or a cationic polymeric binder which is dissolved in an

aqueous ink solution. None of these elements are suggested by Takahashi, Kurabayashi and Yatake either alone or in combination.

For the above reasons, the 103(a) rejection of claims 13 and 46 based on Takahashi or Kurabayashi in view of Yatake should be withdrawn.

Claims 14, 16, 47 and 49 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kurabayashi et al. or Takahashi et al., either of which in view of Watanabe et al..

Combining Kurabayashi or Takahashi with Watanabe would neither suggest nor make obvious the presently claimed invention. In the presently claimed invention, the quaternary ammonium compounds disclosed in both Kurabayashi and Takahashi are 1000 MW or less and are therefore distinguishably different than the larger cationic polyelectrolytes such as quaternary ammonium, having a weight average MW of from 2000 to 10,000 of the presently claimed invention.

On the basis of the above amendments and arguments, the 103(a) rejection of 14, 16, 47, and 49 based on Kurabayashi or Takahashi in view of Watanabe should be withdrawn.

In light of the above amendments and arguments, applicants respectfully request that the §§ 112 and 103(a) rejections be withdrawn.

A prompt and positive response is respectfully requested.

Respectfully submitted,

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